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## HORACE'S MOST ANCIENT MARINER (A STUDY OF CARMINA 1.3.9-40)<sup>1</sup>

The ode in which Horace wishes Vergil Godspeed on his projected journey to Greece breaks off abruptly after the prayer for 'bon voyage', and dwells on the reckless, adventurous spirit of man, that through the ages has merited the punitive thunderbolts of Jupiter's wrath. The first mariner, whether demigod or man, must have had a heart as bold as his primitive raft was fragile. In the Kiessling-Heinze edition of Horace, Odes and Epodes, the opinion is expressed that the poet had no definite individual in mind; on the other hand, Lucian Müller, without pressing the point, refers to the Argo as the first ship and cites some variations to the tradition. Perhaps Vergil, to whom the ode was dedicated, had a different opinion. He and Horace belonged to the same literary coterie; and, in spite of the conventional rhetorical form of the poem, there may be in it personal and literary allusions which may help us in the interpretation. If, then, we would hunt for a clue to Horace's most ancient mariner, we had best embark on a voyage of discovery and touch at many ports in the realms of myth, legend, and philosophic speculation.

The ode is what is called a propempticon. It follows, not without a certain Horatian freedom, such conventional rules for the composition of this class of poems as are laid down, for example, by the rhetorician Menander<sup>2</sup>. The problem has been handled by Fr. Vollmer in his commentary on the imitation by Statius (Silvae 3. 2), and, more fully, by Professor G. L. Hendrickson (The Classical Journal 3. 100-104).

Nothing in the first part of Horace's poem implies that Vergil is either impious or foolhardy in planning to take the shorter sea-route to Greece rather than brave the laborious journey by land around the Adriatic. Nor in the act of the first experimental sailor is there any such direct imputation; rather, the first mariner was mightily courageous. When the poet reflects on the dangers confronting him, he passes on to seafarers in general and broods on the time-honored philosophical theme that the place for men, if they would live agreeably to nature, is on the solid earth; 'godfearing foster sons of the solid earth', Statius calls them (Silvae 3. 2.62).

Strangely enough, as illustrations of audacious impiety, Horace chooses, from the score of mythological examples available, not instances of punishment inflicted on mortals for offending Poseidon, but the Titan Prometheus, and the demigods Daedalus and Hercules,

who are usually called benefactors of humanity. Man's greed and 'vaulting ambition' increase with his progress in civilization; man misuses the divine gifts, and by this sin invites the lightning of Jove. If there were no greed, no sin, the Golden Age would return. Such also is Vergil's thought in Eclogue 4, and in Horace's, too, in Epode 16. Fr. Skutsch thinks that Epode 16 was demonstrably imitated by Vergil<sup>3</sup>. Indeed, the theme was a commonplace. Horace, who had a sense of humor, also knew Vergil better than we do. Professor Hendrickson has acquitted Horace of a possible lapse in good taste in seemingly giving his friend the 'cold shivers' on the eve of his departure, for the ode is conventional. The thunderbolts of Jove are but flashes of stage-lightning. To the brother poet Vergil's path to heaven lay along Helicon and Parnassus. Professor Hendrickson reminds us that the execration of the inventor of seafaring was conventional, being enjoined by the rules of propriety attached to the poetic form. True. But Horace does not directly execrate the first sailor. The experimental 'raft' (*ratem*) of verse 11 becomes in verse 23 the plural *rates*, 'craft', the ships of commerce. So far as Vergil is to be reminded of the impiety of sailing on the sea, it is with coin of a Vergilian mintage; for Vergil had called seafaring impious in Eclogue 4.31: 'a few vestiges of ancient guilt will remain to bid man *templare Thetim ratibus*'. There will be another Argo, but, later, *cedet et ipse mari vector, nec nautica pinus mutabit merces*. We may, therefore, well wonder whether there are any other traces of literary reminiscence. But first let us examine our ode.

What do the words *illi robur et aes triplex circa pectus erat* mean? The passage has been reexamined by R. Hildebrandt in an article entitled *Zu Bekannten Stellen*, in *Philologus*, 70 (1911) 52-64. His conclusions confirm, in the main, the current view, based on Porphyry, that the first sailor had a very hard heart (*eum durissimo corde ac pectore fuisse*). But the figure of speech is nautical. *Circa pectus* = *in pectore*. The first sailor had need not of a sevenfold shield (*clipeus septemplex*), but of a 'spirit of seven bulls' hides' within his breast (Aristophanes, *Frogs* 1017). The underlying idea, continues Hildebrandt, goes back ultimately to the poetic and philosophic conceit that the human race originally sprang from trees and rocks: *gensque virum truncis et duro robore nata* (Vergil, *Aen.* 8. 315). But the reference in Horace is to the strength of the wood and the metal<sup>4</sup>. *Robur et aes triplex* is to be taken as a case of hendiadys; the metaphor is suggested by the copper parts of an ancient ship. I do not quite agree with the conclusion (page

<sup>1</sup>This paper was read at the Seventeenth Annual Meeting of The Classical Association of the Atlantic States, at Rutgers College, May 4, 1923.

<sup>2</sup>In the *Rhetores Graeci*, as edited by Spengel, 3.309.

<sup>3</sup>*Kleine Schriften*, 363-377 (= *Neue Jahrbücher* 23 [1909], 23-35.  
<sup>4</sup>Compare *aes triplex*, Vergil, *Aen.* 10.783.

64): 'The conqueror of the sea carried in his breast no feeling heart, but, instead, an oak block encased in copper like the hull of a ship'. According to this interpretation, *circa pectus* is emphatic: 'not only in the ship, but also in his breast', "nicht bloss im Schiffe, auch in der Brust". My feeling for the sense of the passage would lead me to say, rather, "in der Brust, weil nicht im Schiffe", oak and copper casing, figuratively speaking, in or about his heart, because not in his ship. In the first place, the first boat was, relatively speaking, a flimsy floating raft; and, in the second place, a familiar stylistic device of Horace, 'cross-suggestion by contrast', makes this meaning almost sure. As the 'frail' raft is contrasted with the 'destructive' sea, so the lone sailor (*illi qui primus*), contrasted with the infinite waste of heaving water, stands out in splendid isolation as calm and unmoved; he must have had a 'brass-bound oak-framed' soul, since he certainly did not have a 'brass-bound oak-framed' ship. *Truci*, like 'raging', is a standing epithet for the sea. The first sailor probably chose a smooth river<sup>4</sup> or a perfectly calm sea on which to launch his experimental raft. Poetic convention would warrant us in supposing that Horace may have regarded the sea as aroused to anger at such desecration; yet the germ of this thought develops only later in the ode. The gentle Vergil is to set sail in a fair wind in a modern ship equipped with the best safety appliances. The most ancient mariner who "first hanelled with voyage Amphitrite untried before" (Catullus 64.11, as translated by F. W. Cornish) hardly suggests the fifty Argonauts; his courage was in inverse ratio to the stability of his raft; the frailer the raft, the stouter his seaman's heart.

While, as was observed above, Horace very possibly had no definite myth in mind ascribing to some god, demigod, or mortal the invention and the launching of the first boat, still he was probably familiar with the conflicting myths of Greek poets and mythographers. In *Carmina* 1.2 he descants on the enforced voyage of Deucalion and Pyrrha in their 'Noah's Ark'. In Epode 3.9-13 and Epode 16.57 he alludes to the Argo and the Argonauts, the Argo being the most familiar type of early ship, and sometimes called the first large ship, or even the first ship<sup>5</sup>. Horace conceives the *arva beata* as a remnant saved from the Golden Age, a place 'whither no Argonauts had rowed their ship, where Medea had never set foot—a place set apart for the righteous <*piae genti*> when Jupiter in wrath debased the Golden Age to bronze'. There is a parallelism between Epode 16 and Eclogue 4, and between both and Odes 1.3. The connection may be due to a lost Greek source, or, perhaps, as I am inclined to think, to the influence of the literary circle of Maecenas. We have in epode and ode the impiety of selfdestruction, the wrath of Jupiter against the wicked, and the impiety of the early mariners, who, according to a current Stoic doctrine, accelerated by their avarice the debasing of the Golden Age. Neither in ode nor in epode is the practical convenience of the ship denied<sup>6</sup>. Horace himself

proposes to sail to the Happy Islands. Again, Castor, Pollux, and Hercules, the demigods mentioned in Odes 1.3, were Argonauts. Lastly, the allusion to stormy Hadria (though often a commonplace), in connection with Acrocerania, 'The Headlands of Thunder', as typical perils of navigation, recalls a shred of the Argonautic legend preserved by the geographer Strabo (1.21.10), that Jason and his companions voyaged as far as Italy, and that, around the Adriatic shore and the Acrocerania, as well as about the Bay of Naples, there were still preserved memorials of their fabled wanderings. For several reasons I doubt that Horace thought of the Argo as the first ship; but he may well have had the Argonauts in mind when he generalized (17-24) on the dangers of sailing on the high seas.

Seneca imitates the Horatian ode in a well-known chorus (301-379) of the Medea; but the subject of the tragedy and not necessarily any implication in the ode involves the Argonautic story. Moreover, Euripides's Medea and, at somewhat greater length, Ennius's Medea began with a *conquestio*: 'Would that the ship had never been built'. Statius, on the other hand, in his propempticon (Silvae 3.2), although he shows reminiscences of Horace, makes no allusion to the Argonauts. The first sailor of Statius was *audax ingenii*, no less so than the giants who piled Pelion on Ossa. Statius's imitation of *robur et aes triplex* is applied directly to the modern ship, not to the bark of the most ancient mariner: *imus in abruptum gentilesque undique terras fugimus exigua clausi trabe et aere nudo*. Even the developed ship is but a flimsy fabric. Truly, as Juvenal says, when we sail the seas, we are separated from death by but a few inches of timber. The belief that the Argo was the first ship is to be traced to the Alexandrian writers<sup>7</sup>, from whom it was adopted by the Romans. Apollonius of Rhodes, Varro of Atax, Catullus, Ovid, and Valerius Flaccus take this position, not always consistently, for Apollonius<sup>8</sup> and Valerius Flaccus<sup>9</sup> mention other vessels as existing, while Propertius (1.17.13-18) makes the inventor of the ship Argo call upon the constellation of the Tyndaridae, whom tradition includes among the Argonauts! Tibullus (1.3.39) associates seafaring with the debasing of the Golden Age and the pursuit of gain<sup>10</sup>. Propertius (3.7.4-6 Mueller) execrates *pecunia* as the cause of sea-trafficking and names Nature herself as the responsible inventor (37): *Natura insidians pontum substravit avaris*.

The habit of execrating the inventor of seafaring was probably first made common by the writers of Argonautica, and, conventionally, within and without the Schools, by philosophers and moralists. The best known early example of this type of philosophic afterthought is in the chorus of the Theban elders in Sophocles, Antigone 332-383, who sing of how man, 'overcunning', masters the forces of nature, conquering

<sup>4</sup>See P. Brandt, Ovid, *Amores*, page 211, and his notes on 1.15.21, 2.11.1.

<sup>5</sup>1.133-138.

<sup>6</sup>2.107-111.

<sup>7</sup>Vergil, *Georgics* 1.136.  
<sup>8</sup>See the articles on the Argo in Pauly-Wissowa and in Roscher.  
<sup>9</sup>Vergil, *Georgics* 1.121-145, affirms that Jupiter made man toil on land and sea in order that he might improve by development.

<sup>10</sup>K. F. Smith's notes on Tibullus 1.3 offer a succinct review of the opinions of the ancients regarding the rashness, impiety, and greed of those who go down to the sea in ships.



first the deep: "Wonders are many, and none is more wonderful than man, the power that crosses the white sea, driven by the stormy south-wind, making a path under surges that threaten to engulf him" (Jebb's translation).

The Greek writers are amusingly inconsistent in their mythologizing about the first mariner, as they doubtless had little to go on and no conscience about the matter: "Do I contradict myself?", said Walt Whitman; "Very well, then, I contradict myself". According to Homer (Od. 7.35, 108), the god Poseidon himself allowed the Phaeacians to traverse the sea in swift ships, and in this they excelled. Hesiod, *Works and Days* 236-237, 247-248, condemned seafaring. In the Argive mythology, Athena helped Danaus build the ship by which he safely conveyed his fifty daughters from Egypt. This is called by Apollodorus (*Bibliotheca* 2.12 = pp. 53-54 in the edition of Wagner) the first ship. Hyginus (*Fabula* 168) declares that it was the first *biprora*, and that Athena herself built it. By another variant tradition<sup>12</sup> Danaus constructed the Argo. But the common version is that Athena helped Jason to build the Argo, the first large ship, and later accepted absolutely as having been the first ship, and so put among the constellations as the first ship, by Aratus, Pseudo-Eratosthenes, and Manilius. But Martial (7.19) has an epigram on a bit of timber from the Argo preserved as a relic at Rome. Athena was called Ergane and Mechanitis, as especially the patroness of carpenters and wagonbuilders. In the Hymn to Aphrodite, 12-13, she is said to have taught men how to make chariots.

Aeschylus, *Prometheus* 467-468, apparently following an Attic myth, makes Prometheus declare that none other than himself invented the 'canvas-winged ship-chariots'.<sup>13</sup> The reference in Euripides, *Suppliants* 209, is generally taken to allude to Prometheus, although, as Professor Gulick points out<sup>14</sup>, the rationalistic poet may refer to no particular divinity in *ἡ θεὸς* (201-202).

Apollonius of Rhodes (1. 133 ff.) seems to consider Nauplius, son of Poseidon and of a daughter of Danaus, the first expert sailor; his great-great-grandson Nauplius was numbered among the Argonauts. Oppian, writing his *Haliectica*, under the Antonines, describes (2.29-37) how Demeter, Pallas, Hephaestus, and Ares severally taught men the useful arts, but he is unable to name the first promoter of navigation, whether wide-ruling Poseidon, aged Nereus, Phorcys, or some other god of the sea. An Andros inscription (*Anthologia Palatina* 3, *Supplementum* 4. 32, 55-67) names Isis as the first to instruct in the art of navigation. Palaephatus, in his book on *Incredible Things*, rationalizes the myth of Daedalus by suggesting that he escaped from Crete, not by flying, but on a winged ship. An epigram by Antiphilus of Byzantium (*Anthologia Palatina* 9. 29) even declares that Tolma, Audacity herself, invented the ship.

<sup>12</sup>Scholia Stroziana to the *Aratea* of Germanicus, page 172.

<sup>13</sup>This passage may be compared with Catullus 64.9: *ipsa levi fecit volitantem flamine cursum*.

<sup>14</sup>The Attic Prometheus, in *Harvard Studies in Classical Philology*, 10 (1899), 108.

As we have found Castor and Pollux, 'Helen's brethren twain', Prometheus, and perhaps Daedalus, associated in various myths with early ships, it need not surprise us to find Hercules, also an Argonaut, the other demigod mentioned in Horace, *Odes* 1. 3, the great traveler and adventurer of mythology, also connected with primitive navigation. I will transcribe a paragraph from Richard Bentley's *Dissertation upon Phalaris* (1. 173 f.) for its quaint language. Following Athenaeus (4. 237) he says:

... He tells us from Pisander, Panyasis and Pherecydes, that when Hercules designed to go to Erythea, an isle in the western ocean, he forced the sun to lend him the cup that he uses to sail from west to east every night; and in that cup he passed over to Erythea. And he proves further from Stesichorus, Antimachus and Aeschylus, that there was such a fabulous tradition. . . . Apollodorus tells the same story. . . . and Macrobius. . . . But Athenaeus adds that, according to Mimnermus 'tis a golden bed. . . . and not a cup. . . . Nay if we believe the author of the *Titanomachia* and one Theoclytus, 'tis a cauldron, and thence it is that Alexander Ephesius says that Hercules sailed to Erythea in a brazen cauldron, but Euphorion denies all this and calls it a brazen ship. . . . if *ἄκαρος* in this place do not signify a cup in the fashion of a ship.

As was set forth earlier in the paper, according to one view Deucalion, the son of Prometheus, was taught by his Titan father how to construct the larnax or ark in which he and Pyrrha were saved from the flood. Ovid (*Met.* 1. 318-319) calls the larnax *parva ratis*, and says that other mortals tried to save themselves by canoe (*cumba*: 293-298). It was in a larnax ('oak held together with copper nails', as Simonides describes it) that Danae and the infant Perseus drifted to Seriphos. Now, apart from the fact that in Horace, *Odes* 1.2, Pyrrha and Deucalion are described as floating in their primitive bark, we may note that their connection with Prometheus may be the hidden clue which we have been seeking. Horace and Vergil belonged to the literary circle of Maecenas. Now, Maecenas had published a work on Prometheus, of unknown content, and Horace in *Odes* 1. 16.13-16, 2. 13. 37-38, 2. 18. 34-36, gives variants of the Prometheus story found nowhere else in the tradition of antiquity. Professor C. H. Moore<sup>15</sup> notes this fact. I myself, and doubtless many others, have wondered whether Horace does not hope to flatter Maecenas by imitating his peculiar version of the myth. But we may advance one step further. Vergil, in *Eclogue* 6, represents Silenus as singing of the creation and the progress of the world; of Pyrrha and the flood; of the Golden Age of Saturn; of the theft of fire by Prometheus; of the hunt of the Argonauts for Hylas, the lost favorite of Hercules; and of the Minotaur and Pasiphae, associated with the Daedalus cycle. But as *Eclogues* 4 and 6 parallel all the mythological allusions in *Odes* 1. 3, we may, perhaps, be justified in assuming that *Odes* 1.3 is coterie-verse, and that the address to the departing Vergil is not lacking either in good taste or in propriety, if Horace plays with the *Eclogues* as Vergil, previously, had played with *Epode* 16.

As the song of Silenus suggests Lucretian influence,

<sup>15</sup>On Horace, *Odes* 2.13.37.

a word or two should be added on the rôle the ancient mariner played among the philosophers. For the Epicureans, who eliminated the gods as rulers of the world, seafaring was not an act of impiety. According to their theory the art of navigation was developed by man as his needs required, along with the other civilizing arts. Thus Lucretius (5.999-1000) makes man yield to the illusive calm and seductive beauty of the sea and then work his own destruction amid storm and tempest in the mad pursuit of wealth.

The ancient poets on the whole agree that the Golden Age knew nothing of ships and that their use was one of the main reasons why the human race degenerated, a reflection that gave the Cynics and the Stoics a convenient handle for moral teaching, some execrating the cupidity and the audacity of man, others admitting the solid advantages of commerce. Alciphron<sup>16</sup> tells in one of his letters how a fisherman overheard a Stoic preaching on the folly of sailors and using as his text a verse of Aratus, 'a little timber separates from death'. Aratus himself wrote under Stoic influence. A like sentiment is attributed to Anacharsis, the Scythian, often reckoned among the Seven Wise Men of the ancient world, and accounted the inventor of the anchor. When he was informed that the sides of a ship were four fingers thick, he said: 'Those who sailed in a ship were removed by just that distance from death'. This conception of the popular philosophy may be paralleled by Juvenal 12. 5, 14, 289; Seneca, *Medea* 307; Ovid, *Amores* 2. 11. 26; Valerius Flaccus 1. 123; Statius, *Silvae* 3. 2.79. A Greek proverb, 'if God wills you could sail even on a mat', is ascribed by Plutarch to Pindar. In Aristophanes, *Peace* 699, it is applied to Sophocles: 'for the sake of gain he would sail even on a wicker mat'<sup>17</sup>.

A Stoic with a very nautical name, Poseidonius, seems to have discussed at some length the invention of the ship, which, like other things useful to mankind, he regarded as devised by the philosophers. Seneca (*Epp.* 90. 24), rejecting this thesis, maintained that man, i. e. mere man, invented the ship by copying the steering gear of a fish! And Oppian (*Haliectica* 1. 340) suggested that the inventor, whether a god or a bold-hearted man, copied the nautilus, which raises its sail to the winds and steers itself with its own rudder. And Critias says that the Carians, stewards of the sea, first invented merchantships, as Thebes invented the chariot. These quaint illustrations (probably I have not exhausted the list) reveal the creative workings of the ancient poetic fancy.

In premythical times sailing on the water was probably taboo; death resulting from attempts at navigation was interpreted, we may suppose, as a punishment from the gods. Yet men did not always drown. Ships became a necessity and a convenience. Hence a later mythology represented Poseidon, or his rival Athena, as designer of the first craft. The association of impiety, always vividly present in the popu-

lar imagination, reappears in later philosophic afterthought. The pseudo-Acronian scholia to Horace go so far as to affirm that in the Horatian ode *aes triplex* refers to the huge profit, thrice the usual rate of interest, expected.

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GEORGE DWIGHT KELLOGG

## REVIEWS

Die Anaptyxe im Lateinischen. By A. W. de Groot. Forschungen zur Griechischen und Lateinischen Grammatik, Herausgegeben von P. Kretschmer und W. Kroll, Sexte Heft. Göttingen: Vandenhoeck und Ruprecht (1921). Pp. IV + 92.

The variations from standard spelling in Latin inscriptions and manuscripts constitute a very important class of evidence with respect to Latin pronunciation and phonetic development, and abundant use has been made of them by nearly all students of Latin grammar for many years past. Nevertheless, only one systematic attempt to collect the huge mass of material involved has ever been made, and that one covered only the vowels; I refer to Schuchardt, *Der Vokalismus des Vulgärlateins*, 3 Volumes (Leipzig, 1866-1868). In the half century since this important work appeared the available material has been increased by the publication of the *Corpus Inscriptionum Latinarum*, the *Corpus Inscriptionum Glossariorum*, and numerous critical editions recording the variant spellings of the manuscripts. A full collection of this material would add much to our knowledge of the sounds and the sound-changes of the Latin language, and would help us to understand the origin of the Romance languages.

Dr. de Groot has collected the material bearing upon anaptyxis<sup>1</sup>, or the development of vowels within consonant groups. This topic had been covered by Schuchardt; but our author has corrected and greatly increased the material, and he has substituted a clear and simple arrangement of the lists for the misleading arrangement which Schuchardt followed. Not only the numerous examples of anaptyxis in late vulgar Latin are included, but also the fewer examples from early Latin, and a large number of modern Neapolitan and Sicilian words which show anaptyxis as compared with standard Latin. This is a thoroughly satisfactory beginning, and it is to be hoped that Dr. de Groot will ultimately give us full collections covering the consonants as well as the vowels.

The discussion of the evidence is not easy reading, and not all the conclusions reached are convincing. It is quite conclusively shown that the anaptyxis of late vulgar Latin was independent of accent, and was therefore not a mere reflex of syncope, as Schuchardt supposed. Furthermore, the development of a vowel between mutes (*Ocelavi* for *Oclavi*, *Specetatus* for *Spectatus*, *Ericethonius* for *Erechthonius*, *opetatus* for *optatus*) shows the inadequacy of the usual explana-

<sup>16</sup>1.3 (in the edition by Schepers).

<sup>17</sup>Compare Lucian, *Hermotimus* 28. The motive of avarice became very popular.

<sup>1</sup>This process has sometimes been called epenthesis, which term has also been applied to the development of a consonant within a consonant group, as in *emptus* from *emlus*. The word is now chiefly used of a form of assimilation which is to be seen in *φαίω* from *\*φανω*.

tion of anaptyxis as due to a syllabic liquid or nasal (*patrem* becoming first *pa-tr-em* and then *paterem*).

The author's suggestion that anaptyxis is due to increased energy required for the pronunciation of certain consonant groups is not fortunate. Since the process most frequently affects mute plus liquid, we are led to the absurd conclusion that such groups as *pr*, *cr*, *tr*, *cl*, and *pl* were peculiarly difficult to pronounce. The real source of the phenomenon seems to be merely an inexact coordination of the muscular movements required in pronouncing a consonant group. The group *pt*, for example, requires that the lips be held together until the tongue has been placed firmly in contact with the teeth or the gum. If the lips are opened a moment too soon, a puff of breath escapes, and this is the starting-point of the anaptyctic vowel.

Possibly the most important generalization to be drawn from these lists is this: the character of the anaptyctic vowels conforms almost perfectly with that of other unaccented vowels. Dr. de Groot does not bring this fact into clear relief, and one suspects that he does not realize the closeness of the parallelism. The principal way in which anaptyctic vowels differ from the others is that the writing of them is not restrained by a traditional orthography. Assimilation of unaccented vowels, as in *rutundam* for *rotundam* and *Sebastianus* for *Sebastianus*, was undoubtedly familiar to many speakers who nevertheless always spelled in the established way; but, when anaptyctic vowels were written, there was nothing to prevent the representation of the vowel quality actually employed. The very frequent assimilation of anaptyctic vowels follows the tendencies seen in other vowels. It is usually the next following vowel that colors the new vowel, as in *sepulchorum* for *sepulchrorum*, *condemari* for *condemnari*, *satatus* for *status*, *Heburus* for *Hebrus*. Examples of assimilation to the preceding vowel are *Calavius* for *Calvius*, *Samanitas* for *Samnitas*, and *salapilla* for *σαλπικτης*. Assimilation to a more distant vowel is seen in *matrimonio* for *matrimonio*, and *Mithradaticis* for *Mithridaticis*.

Except for assimilation to the neighboring vowels, anaptyxis regularly gives *e* before *r*, and *i* before other single consonants (compare *reperio* from *pario*, but *recipio* from *cipio*, etc.). The less frequent writing of *e* before a single consonant other than *r* is parallel to the occasional writing of *e* for short *i* of any other origin; it is due to the open pronunciation of *i* (see my book, *The Pronunciation of Greek and Latin*, 16-17). Nearly all examples of *i* instead of *e* before *r* are due to assimilation to the vowel of the next following or preceding syllable (e.g. *nutrices* for *nutrices*, *Alexandiri* for *Alexandri*, *Pirimo* for *Primo*). *Ciracil* for *Gracilis* exhibits assimilation to the vowel of the second following syllable. Dr. de Groot lists also *Avirelia* for *Aurelia* and *cirea* for *crea*. Anaptyxis is scarcely possible after the second member of a diphthong, as in *Aurelia*: at any rate this is the only instance of the sort here listed. Probably the form *Avirelia* is a graphic error, if it is not due to some analogy. The word *crea* occurs only in several glossaries, where it is defined as *stercus*.

Thurneysen, *Thesaurus Linguae Latinae*, sub voce, suggests that the word may have been abstracted from *excreare*, but its origin is really quite unknown. Possibly it is a loan word, and the explanation of the vowel *i* in the variant form may not belong to Latin grammar at all.

The *u* of *nomenclator* may be due to the velar *l*, as the *u* of *extempulo* (Plautus, *Aulularia* 93) pretty certainly is; but, if this is so, we must assume an early origin for the form. In later words, anaptyxis gives *i* or *e* before *l* and a back vowel (*Cilauci* for *Glauci*, *pilus* for *plus*, *Celodia* for *Clodia*, *geloria* for *gloria*, *Progela* for *Procla*, *felurias* for *florias*, *felamen* for *flamen*), and thus confirms my deduction from other evidence that *l* before back vowels lost its velar character by about the middle of the first century A. D. (*The Pronunciation of Greek and Latin*, 80).

Anaptyxis before two consonants or a double consonant is, of course, rare. The vowel *e*, which other vowel changes would lead us to expect, appears in *calex* for *calx*, *aletrix* for *altrix*, and *dextris* for *dextris*. The *i* of *Sicribonius* for *Scribonius* shows assimilation to the following vowel, and that of *linix* for *λύγξ* assimilation to the preceding vowel. In *adignitus* for *adgnitus* we have the vowel which is normal before velar *n* (*dignus* beside *decet*). There remains a single form for which there is no obvious explanation, *falix* for *falx*, in a manuscript of the sixth or the seventh century.

If the character of anaptyctic vowels harmonizes with that of vowels altered ('weakened' is the common word) under the influence of the prehistoric initial accent, we have a powerful support for Skutsch's theory (*Glotta* 4.191-198) that prehistoric Latin suffered an extensive syncope of unaccented short vowels, and that this was followed by somewhat less extensive anaptyxis. The reason why the new evidence is not to be called conclusive is that the two processes are separated by an interval of several centuries. The whole question calls for a reexamination.

By way of summary, we must record that Dr. de Groot is not always a safe guide either in phonetics or in grammar and that he has not drawn all the conclusions warranted by his evidence. On the other hand, his full and well-arranged collections of material enable us to supplement his discussion where this is necessary.

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E. H. STURTEVANT

Griechisches Staatsrecht. Erster Band: Sparta und seine Symmachie. U. Kahrstedt. Göttingen, Vandenhoeck und Ruprecht (1922). Pp. xii + 443. \$3.60.

This is the first part of a projected work of several volumes, of which the first and the second are to be devoted respectively to Sparta and Athens with their alliances, the third to a discussion of the nature of the *polis* and the conditions preceding the rise of the Greek monarchy, and the remainder of the work to an interpretation of the Greek monarchy itself and its influence upon Rome. The author has selected the title "Griechisches Staatsrecht", and not "Griechische Altertümer", to emphasize the fact that he is seeking to set



forth the principles of the constitutional law of the Greek States and not merely to describe their various public institutions. This will explain the omission from the present volume of any description of the Spartan system of public education, which, although of extreme importance in the life of the State, has no bearing upon its constitutional law. In his arrangement of his subject-matter, Professor Kahrstedt has not divided this volume into three separate parts dealing respectively with Sparta, the Perioeci, and the Allies; but to avoid troublesome cross-references he has grouped the material affecting all three under the following chapters: I. Das Staats- und Bundesgebiet; II. Die Staats- und Bundesangehörigen; III. Die Staats- und Bundesorgane; IV. Der Staats- und Bundeszweck.

In his view of the extent of Spartan and Perioec land, the author frequently differs from the conclusions reached by Niese in his study entitled *Die Lakëdämonischen Periöken*, in *Nachrichten der Göttingischen Gesellschaft der Wissenschaften*, 1906, 101 ff. He criticizes Niese for having made the erroneous assumption that the Eleutherolaconians of later times were all descendants of Perioec communities, whereas they really included communities that were originally Helots as well as those originally Perioeci (page 2, note 5, and *passim*). With regard to the legal status of the Helots and its origin Professor Kahrstedt's position is in striking contrast to the conventional view, as given, for example, by J. Oehler, in *Pauly-Wissowa, Real-Encyclopädie*, s. v. *Heloten*. The Helots he regards as Dorians like their masters, and not as descendants of a conquered people. This is in accordance with his theory that the Achaeans were Dorians, and that there was no Greek invasion of the Peloponnese after the sixteenth century. The Helots of Laconia became such, not as a result of war among the Dorians themselves, but from the operation of the same economic forces which brought into serfdom the poorer agricultural classes in many other Greek States. On the contrary, the Messenian Helots, he maintains, were enslaved by the Laconian conquest of Messenia; and, interpreting the name 'Helots' as 'captives in war', Professor Kahrstedt argues that the subjugation of the Messenians preceded the full development of serfdom in Laconia and that the name applied to the Messenian serfs was transferred subsequently to those of Laconia. The legal status of the Helots, the author holds, was "*Leibeigenschaft*", not "*Hörigkeit*", i. e. serfdom and not clientage, although it is granted that a period of clientage must, in Sparta at least, have preceded the fully developed serfdom. In contrast to clients or *coloni*, who are bound to the soil and cannot be removed from it by their lord, while their obligations consist in contributing from the produce of the land they occupy and in tilling the land of their lord, the Helots are not bound to the soil, have no claims upon it, can be employed for any service their lord may require, and are liable to sale or execution. The Helots, furthermore, have not the right of legally transacting business or of acquiring property in cattle, the products of the soil, or other movables. The

proprietaryship over the Helots rests with the individual Spartans and not with the State, except where they are the private property of the community and have no individual overlords. The owner is responsible to the State for the behavior of his Helots, and for the exaction of a minimum (there is no maximum) contribution from them, but the State controls his use of his proprietary rights, aids him in maintaining discipline, and exercises the right to levy a tax upon his Helots as upon other forms of his property. This latter circumstance explains the presence of numerous Helots in the State service. They are a contribution made to the State by the original proprietors, and so become State property and may be emancipated or otherwise dealt with by the State authorities.

Another *novum* is Professor Kahrstedt's conclusion regarding the constitutional relation existing between Sparta and the individual Perioec towns. This is that in the treaty which regulated the status of each of these communities the majority of the rights which the Perioec towns surrendered were conveyed to the Spartan crown and not to the Spartan State. The tie was thus a "Personalunion". By virtue of these treaties, the Spartan king could call out the levy of the Perioeci, without the interference or cooperation of the Spartan people. In course of time, however, the ephors, as the representatives of the Spartan folk, came to infringe greatly upon these royal rights.

The concluding pages of the book (378-443) contain four important Appendices, in which the author discusses (1) the Cretan constitutions, (2) the Corinthian Colonial Empire, (3) the constitution of the primitive Greek State, and (4) the Delphic-Pylaeic Amphictyony. Of particular significance is Appendix III, for the survey which is given here of the origin, character, and gradual transformation of the constitution of the earliest Greek States regarding which any definite information may be gathered from tradition forms the background for his interpretation of the Spartan constitution. This primitive Greek State was an hereditary monarchy, with the king as the sole owner of the land, which he assigned in revocable allotments to the people. He summoned such advisers as he chose to his council, but neither that body nor the assembly, which met chiefly to declare its allegiance to a new ruler, had any established rights. This highly developed monarchical power was an outgrowth of the earlier tribal state under the influence of the neighboring island of Crete, to which the Greeks were politically as well as culturally indebted. However, in the course of time the royal allotments came to pass without question from father to son until they were transformed into the private property of their holders, and in this way arose both great and small landed proprietors. The right to sit in the king's council became hereditary also. The king's deputies (in Sparta, the Ephors), whom he once appointed to administer justice in his absence, came to be chosen by the people in their assembly, and so evolved into magistrates. The assembly, in place of meeting to swear allegiance to the new king, met to confirm his succession. As time went on, those land-



holders who were able to reside permanently at the seat of government, the *polis*, came to acquire a monopoly of political rights, while those who were unable to do so gradually lost their citizenship and sank into serfdom, becoming Helots in Sparta, Penestae in Thessaly. In Athens the legislation of Solon interfered to save the peasantry from a similar fate.

The great value of the work as a whole lies in the author's ability to disentangle the real evidence of the sources from the interpretations which the ancient authors put upon the material which they have preserved, and in the skill with which he applies to the interpretation of the evidence thus acquired analogies drawn from the experience of other peoples who have passed through similar stages of growth as the Greeks, but whose history is better known to us, namely, the peoples of Central Europe in Medieval times.

UNIVERSITY OF MICHIGAN

A. E. R. BOAK

### THE MOON AS EVIDENCE

Mr. McCartney's quotation from Ida M. Tarbell's *Life of Lincoln*, in *THE CLASSICAL WEEKLY* 16.167-168, and Professor Knapp's note thereon<sup>1</sup> remind me that Edward Eggleston used the Lincoln incident effectively in his novel *The Graysons* (1887). Tom Grayson has been accused of the murder of a man whom he was known to dislike. An alleged eyewitness, David Sovine, testifies that he recognized Tom by the light of the moon. Tom's lawyer, an old friend of the family, one Abraham Lincoln, produces an almanac by which he shows that the moon was not shining at the time. He then fixes the guilt upon Sovine, as the person most interested in fastening it upon someone else!

Probably no one reads Eggleston now. I have never seen *The Graysons* in book form, having read it in my childhood in the old volumes of the Century.

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MARY JOHNSTON

### THE CLASSICAL CLUB OF PHILADELPHIA

The Classical Club of Philadelphia opened its twenty-ninth year with a meeting—the 169th in unbroken succession—, held at the Princeton Club on Friday, November 9, with thirty-five members present.

Professor Roland G. Kent, of the University of Pennsylvania, read a paper entitled *Latin and English*. He discussed the development of the English language from its beginnings and showed the nature and amount of its classical content at various stages of its growth and in various authors of all periods.

B. W. MITCHELL, *Secretary*

### SCHOOL BOYS PREFER LATIN OF FOREIGN LANGUAGES

Latin among High School pupils has not been surpassed in popularity by any other foreign language, ancient or modern, according to Federal

Bureau of Education reports for 1921-22 from Public High Schools in cities having a population of 100,000 or more. The report shows that 23.3 per cent. of the pupils in these Schools were enrolled in Latin classes.

Next to Latin, French proved to be most in favor among pupils, 21.20 per cent. of whom studied that language. Doubtless with the view to adventure or business enterprise in South America, no fewer than 21.09 per cent. devoted themselves to Spanish; but German, Greek, Swedish, Italian, Norse, Bohemian, and Hebrew were neglected.

In science classes, electricity, geology, and astronomy were least popular. General science attracted 14.84 per cent., followed by biology (8.96), chemistry (8.88), and physics (8.59). Home economics proved highly attractive, bringing to this class 14.27 per cent., while 11.71 per cent. went in for hygiene and sanitation.

In commercial subjects, typewriting (18.50 per cent.), and bookkeeping (18.40 per cent.) stood in front of all others, followed by shorthand (13.54 per cent.). Next came arithmetic (9.09 per cent.); but such studies as commercial law, geography, history, or arithmetic were neglected, as likewise economics, penmanship, office practice, spelling, business organization, and salesmanship<sup>1</sup>.

### SEEDS FROM PHARAOH'S TOMB: MUMMY WHEAT

In my summer and week-end visits to certain farmer friends of mine I have often found myself short of light reading matter. Partly for this reason, partly because *Homo sum: humani nil a me alienum puto*, I make a practice of reading the farm journals which my friends take. In *The Rural New Yorker* for August 25, 1923 (82.1093) I found a very interesting article under the caption used above. The major part of the article consists of a reprint of a paper that appeared in *The New York Sun*, by Dr. Charles Stuart Gager (the date of this paper is not given, but Dr. Gager was moved to write the paper by inquiries inspired by the excavations at the Tomb of Tut-ankh-Amen). Dr. Gager is Director of the Brooklyn Botanic Garden, and Editor of the *Brooklyn Botanic Garden Record*. Among other things Dr. Gager wrote as follows:

In order to think intelligently on this question <How long will a seed live?>, we must know what a seed is. Essentially, a seed is an embryonic plant inclosed in various tissues. . . Some seeds, like the castor oil seed, have nourishment stored between the embryo and the skin. In the bean seed the nourishment is stored within the embryo leaves; that is what makes them so thick. . .

. . . Every living thing continually takes in and gives off oxygen. This process never ceases in living matter; we call it respiration.

But, when we (and plants) respire, the oxygen unites with living tissue and consumes it. That is why we need to continue eating, even after we have attained our growth. We must supply material to take the place of that which is destroyed by respiration. . .

. . . If a tiny embryo plant, such, for example, as a grain of wheat contains, is continually losing its sub-

<sup>1</sup>See also Mr. Radin's note, *THE CLASSICAL WEEKLY* 17.79-80.

<sup>1</sup>Reprint from *The New York Times*, Sunday, December 2, 1923. C.K.

stance by respiration, and if no new substance is being taken in as nourishment, the seed will, in time, have all its living substance oxidized. When this results, the seed will be dead and no longer capable of germination.

...But how long will a seed remain alive?

In the fall of 1879 Prof. W. J. Beal, then a young man in the Michigan Agricultural College, started an experiment to find the answer to this question. He selected 50 seeds of 23 different kinds of plants and buried them in moist sand in bottles in a sandy knoll. At the end of 5, 10, 15, 20 and 25 years sets of these seeds were tested to see if they would germinate. The results of his long experiment were published in 1905. The experiment is still in progress, enough seeds being still buried to allow tests at five-year intervals for 60 years more. The last report on this experiment was published in May, 1922, by Dr. Darlington. At the end of 40 years the seeds of only 10 species would germinate at all.

In other experiments, carried out with great care, it has been conclusively proven that of several hundred wheat grains stored under the best conditions only 8 per cent would germinate at the end of 16 years, and that at the end of 30-35 years not a single seed would germinate. Microscopic examination also showed beyond the shadow of a doubt that the embryos of these seeds were dead.

In 1907 the French botanist, Becquerel, tested the germination of some 500 different kinds of seed preserved in the Natural History Museum of Paris. The ages of these seeds varied from 25 to 135 years. Out of all the seeds tested none germinated that was over 87 years old. Seeds found in the Indian mounds of Missouri and known to be at least more than 100 years old cannot be made to germinate.

How then can we explain the case of the mummy wheat? In 1921 newspapers in England carried news items that oats removed from a mummy case known to be 2,600 years old had germinated. This mummy, in an unopened case, had been presented by Khedive Ismail to John (Rob Roy) Macgregor. The case was opened in England in the presence of reliable witnesses and four oats were found among considerable dust at the bottom of the case. All four seeds readily germinated, two of them producing plants that bore fruit—that is, other oat grains.

When the matter was carefully investigated, it was ascertained that this Khedive had stored numerous mummy cases in the palace stables near the oats used to feed the horses. It was his custom to present mummies as gifts to his more distinguished visitors. The rough handling, aided by the dry air of the stables, developed cracks in the cases or caused the clay inserted between the two halves to break, and fresh oats filtered in. . . .

In 1863 the *Presse Scientifique des Deux Mondes* gave an account of experiments by Figari Bey, in which it was demonstrated that wheat and barley found in ancient Egyptian tombs and purporting to be nearly 3,000 years old could not be made to germinate. Evidence was obtained in this case also that grains of so-called mummy wheat that did germinate were modern grains that had by accident, or otherwise, got into the seed bed.

CHARLES KNAPP

### PLINY AND THE SPIRIT OF YOUTH, AGAIN

In THE CLASSICAL WEEKLY 17.10-12 Mr. E. E. Burrius discussed Pliny and the Spirit of Youth. Some critics have found that spirit totally lacking in the youthful Pliny, rating him as a hopeless prig, because, in one of the famous Vesuvius letters, he tells us (6.

16.7) of refusing to go with his uncle to view the eruption, and of his persistence in study: *Mihi, si venire una vellem, facit copiam; respondi studere me malle, et forte ipse, quod scriberem, dederat.* In the other Vesuvius letter (6.20.5), he comments himself on the youthfulness of his act, saying: *Dubito constantiam vocare an imprudentiam debeam* (agebam enim duodevicesimum annum); *posco librum Titi Livi et quasi per otium lego, atque etiam, ut coeperam, excerpo.* Perhaps the key to industry so remarkable in one of his age may be found in the well-known letter on his uncle's life and works, where he says (3.5.16): *Repeto correptum ab eo, cur ambularem: "Poteras" inquit "has horas non perdere", nam perire omne tempus arbitrabatur, quod studiis non impertiretur.* With such training, small wonder that the boy stuck to his task regardless of the eruption!

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### THE DRILL-BOW IN MODERN TIMES

In my lectures on The Private Life of the Romans, alike in College circles and in the outside world, I find auditors and spectators interested in the drill-bow. I have a lantern-slide which shows several men at work in various ways with the drill-bow, all, as it happens, working in wood. A cut of such a drill may be seen in the Century Dictionary, s. v. Bow-drill. The use of the bow-drill, or drill-bow, in gem cutting is described in the *Encyclopedia Britannica*<sup>1</sup> 16.195, s. v. Lapidary, and Gem Cutting. The bow-drill is still in use, I understand, in gem cutting. Once, years ago, I stopped short, right in the middle of Fifth Avenue, New York City, because I had caught sight of a man on a building using a bow-drill in cutting fine holes in the stone-work on the façade of a great building.

I was reminded of the drill-bow, or bow-drill, when I ran across an item in The Evening Mail, New York City, October 2, 1923, telling how a mother, prostrated by a headache, sought to impress her son into the work of preparing the father's evening meal. Forgetting that he was a Boy Scout, she began to give him minute directions, about how to boil water, etc. He soon set her mind at ease, by telling her that, as a Boy Scout, he not only knew how to cook various dishes, but even knew how to make a fire:

"Then there is another contest, making a fire by friction. In this you have to make a fire by using a bow and drill. You have a little wooden block with a little pit in it filled with powdered wood. In this pit you place the end of a stick, about a foot long, and hold the upper end of it firm so it won't jump out of the hole in the block. In your other hand you have a bow, like one with which you shoot arrows, but the bow string is twisted once around the upright stick. Therefore, when the bow is drawn back and forth, the stick is twirled, and the heat generated by the friction of the end of the stick in the pit is enough to ignite the powdered wood.

Well, it may sound primitive and crude, but the record for lighting a fire by this method is 8 1-5 seconds! What do you think of that?"

By glancing at the article *Igniaria*, in W. Smith, *Dictionary of Greek and Roman Antiquities*<sup>2</sup>, 1.991, one will see that this method of starting a fire was, in general, in use among the Romans. There is no mention in Smith, however, of the bow-drill as a means of rotating or twirling the friction stick.

CHARLES KNAPP